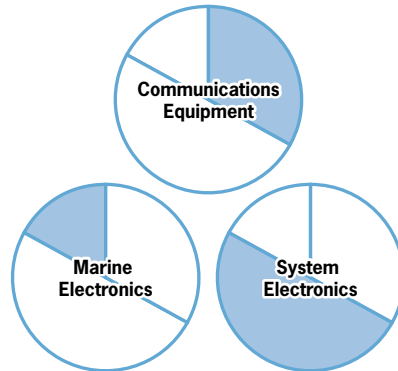


Radio Communications Equipment



47%

JRC Non-Consolidated

With the development of information networks such as the Internet, communication has become increasingly global. Mobile communication has also become an integral part of everyday life as the technology has developed and spread, opening two main avenues for development in communications. The focus of the Radio Communications Equipment segment is to aid the further development of this next-generation style of communication.

The JRC Group parent company Japan Radio Co., Ltd. handles business related to the Radio Communications Equipment segment, comprised

of the three fields of communications equipment, system electronics and marine electronics.

The communications equipment business handles the mobile communications and IT devices that allow people to exchange information faster and easier. It draws upon its base in proprietary electronics technology to produce products in a wide range of fields, from mobile devices such as PHS and mobile handsets, to communication and control network systems such as wireless LANs and fixed wireless access services that support the foundations of society.

The system electronics business develops the system technologies that underpin many of the world's lifelines. It provides reliable technologies for management and control of water lines and roads, communications equipment, emergency services networks, and many other crucial systems that form the foundation of modern society.

The marine electronics business is the oldest of JRC's businesses, one in which it has shown an impressive strength since the Company's founding in 1915. The JRC brand has achieved a solid position in the field of marine equipment, to the point where approximately 30% of all ships in operation throughout the world today incorporate one or more of JRC's products. The seas and oceans account for around 70% of the surface area of the Earth, and JRC's communication and navigation systems play a key role in helping ensure the safety of the ships that sail them. JRC will undoubtedly be a part of the future of marine businesses, helping realize the bounty of the seas with fishing, marine farming and other systems.



W-CDMA
Application Tester

Communications Equipment

> *Mobile Communications*

A specialist in wireless technologies, JRC is exploring the cutting edge of electronics, developing equipment designed to handle sophisticated information processing, including mobile telephones and terminal devices, linear power amplifiers for mobile telephone base stations, business-use radiotelephones, satellite communications and GPS systems. JRC pursues the development of mobile communications from the standpoint of expanding the realm of possibility to include anytime, anywhere and anyone.

> *Telecommunications*

Wireless networks are no longer used only in government or corporate networks, but with the appearance of wireless LAN Hotspots and other access methods, they have found their way into our daily lives. JRC offers a wide array of sophisticated equipment and networks—including wireless LANs, fixed wireless access and mobile base station entrance—to build everything from small-scale systems designed for individual use to large-scale networks for corporations and governments, making the various networks imagined by customers a reality.

> *Broadcast*

JRC has developed innovative equipment for both radio and television, including FM and medium-wave radio broadcast equipment and community broadcast equipment, leaving a lasting mark in the history of broadcasting since the early years of the medium.

Japan will begin terrestrial digital broadcasting of television in certain areas beginning in 2003, requiring significant change in the functions of television broadcasting. Drawing on its long-established base in analog broadcast technology, JRC offers a full line of equipment and systems that permit the deployment of complete systems, including TV broadcasting transmitters, TV transposers and transmission equipment employing the latest technologies, allowing it to respond to the need for terrestrial digital broadcast and transmission network.

JRC is seeking to further expand its broadcast equipment operations by shifting them to the system electronics business, gaining access to a nationwide sales network, from fiscal 2003.

> *Measurement & Testing*

Measuring instruments are vital to the research, development, manufacturing and maintenance of products. Utilizing the expertise it has accumulated over many years, JRC offers a full lineup of cutting-edge measuring equipment for digital mobile communications, helping ensure the reliability of these systems. It is also active in the field of nondestructive measurement, producing equipment that takes advantage of ultrahigh frequency (UHF) radar and signal processing technology to aid in engineering construction and surveying.

> *Electronic Devices*

Stemming from the relentless pursuit of sophisticated functionality and high reliability, JRC is pursuing development of surface acoustic wave (SAW) filters, important devices to support mobile communications. JRC's long-standing device technologies help ensure a high degree of reliability for a large number of products.

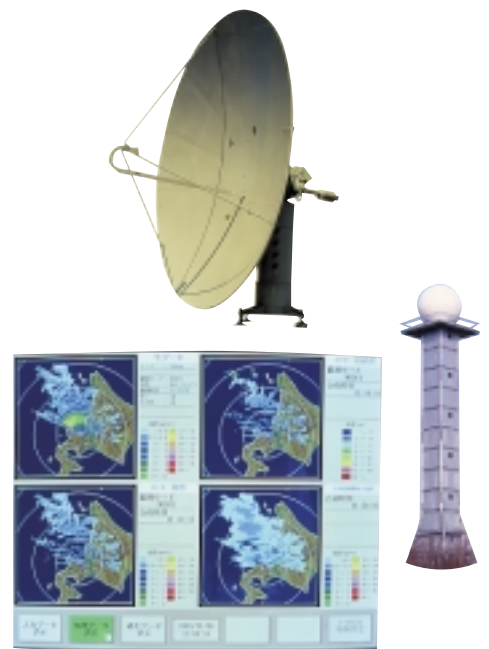
System Electronics

> *Water and River Management*

JRC offers the latest electronics technology to provide solutions for water management, including the development of flood control and water utilization systems. It develops the water management systems that underlie the foundations of industry, society and the everyday lives of people, most notably a variety of control systems for water, rivers and dams, but also including



Personal Handyphone System



Meteorological Radar System



**VSAT Transportable Earth Station
with IP Application**

agricultural irrigation, water supply and sewerage systems, flood prevention, water quality and environmental information systems.

> Disaster Prevention Information

When disasters such as earthquakes, typhoons, floods or tidal waves happen, one of the first things necessary is to collect prompt and accurate information. JRC seeks to minimize the increasingly complex and diversified damage that occurs in today's more integrated society, offering disaster prevention information systems utilizing satellite and terrestrial communications. During normal times these systems serve as a community information service network linking citizens with government, contributing to greater trust and security among the community at large. Japan's microwave multiplex communication system, first deployed by JRC in 1949, plays an important role for government and other public organizations, serving as the trunk network for instructions and communication in times of disaster, as well as the means of communication for a variety of official notices.

> Road and Traffic Management

Whether for industry, logistics, business or leisure, JRC helps support the safe and smooth flow of traffic with prompt and accurate collection and transmission of traffic information. By utilizing the latest road and traffic information communication, monitoring and control systems, it is possible to get an overview of road and traffic conditions, and by transmitting this information through a variety of channels, to contribute to greater transportation safety.

> Meteorological Information

JRC perfected the first weather radar system in Japan in 1954, and since that time has worked to improve the weather forecasting that is so closely linked with corporate activity and daily life. In addition to the weather radar systems used in meteorological observatories and airports throughout the country, JRC's leading technologies are utilized to provide accurate atmospheric data necessary for a variety of facilities, as well as the observation and analysis of rainfall data.

> Seaport / Airport Management & Simulation

Better equipment to maintain and improve safety has been essential to the evolution of sea and air ports. JRC provides for airport authorities the monitoring radar systems that are at the heart of airport safety, and for port authorities the navigation management systems to monitor and control the arrival and departure of ships. The Company also produces training simulators essential to the proper instruction of crew, maintenance personnel and controllers. In this way, the variety of equipment supplied by JRC plays a part in ensuring the safety of the sea and air.

> Electro-Acoustic Systems

JRC's communication technologies are well suited to the creation of comfortable acoustic spaces. In the past JRC provided leading acoustic technologies to support historic events such as the Tokyo Olympics in 1964 and the Japan World Exposition Osaka 1970. JRC continues to build on this technical expertise today, bringing it to life in acoustic equipment for concert halls, as well

as conference sound systems and simultaneous interpretation for a wide variety of conference centers. In all the places where culture flourishes, JRC helps to create comfortable communication spaces.

Marine Electronics

> *Maritime Communications*

Navigating the expanse of the oceans, subject to severe weather and rough sea conditions, requires communication equipment with sophisticated functions. Taking the approach to marine information of improving communication quality and ensuring safe navigation, JRC offers a range of radio equipment for merchant marine and fishing vessels, coast radio stations, as well as Inmarsat (International Maritime Satellite Organization) global navigation systems, for which JRC boasts the largest share worldwide. JRC is helping make the seas safer by developing sophisticated electronic systems and peripheral equipment to provide high-quality communications in any area of ocean throughout the world.

> *Marine Navigation*

JRC's navigation systems are developed from the standpoints of energy conservation, lessening the burden on the crew and above all ensuring safety. From automatic radar plotting aid (ARPA) units and GPS/DGPS navigation systems, to integrated navigation systems that can guide the ship to its destination by the shortest route possible, JRC utilizes a wide variety of electronic technologies to help ensure the safety of the crew and conserve energy in ship operations. The Company's berthing aid equipment and port management radar support efficient entry and departure of ships and maintain safety in ports and straights, playing an important role in many aspects of high seas navigation.

> *Fishing and Marine Farming*

While the fishing industry used to rely on a variety of empirical rules, today for operations to be efficient they must be based on scientific data. JRC's ultrasound and image processing technologies are fully utilized in products such as color fish-finders to accurately chase and catch schools of fish, color-scanning sonar, and color hydrographic phenomena displays that make it easy to find the lines between ocean currents from the temperature just above the sea level. JRC is also supporting the development of the fish farming industry with instruments to measure a variety of resource and oceanographic data, and by building information networks. JRC serves a useful role in helping the fishing industry adapt to the characteristics of various regions.

> *Leisure*

JRC supports safe and comfortable cruising in the area of marine leisure. Even for leisure the reliability of marine gear when subject to severe conditions is of the utmost importance, and JRC offers a number of useful technologies that have survived rigorous testing under professional conditions.



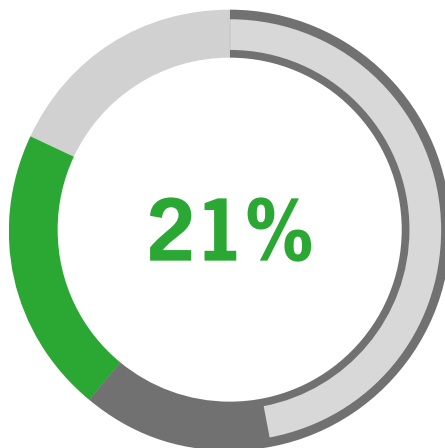
**Fleet F77 Ship Earth Station
(Inmarsat-F)**

Color LCD Radar



Semiconductor Devices and Microwave Tubes

(NEW JRC)



JRC's subsidiary New Japan Radio Co., Ltd. manufactures and sells semiconductors and microwave devices, as well as microwave tubes and peripheral equipment. New JRC was established in 1959 to build on the technology and successes realized by JRC, which was one of the pioneers of microwave and semiconductor technology in Japan. New JRC adopted as its principal business field the electronic devices and technologies that have supported the IT revolution, and has continued to refine its proprietary technologies while generating distinctive products

that have made contributions to the field of electronics. Recently, adopting the slogan of "μ & μ" it has integrated the microelectronics technology of semiconductors with microwave technology to provide new solutions for the multimedia age.

> *Microwave Tubes and Peripheral Equipment*

New JRC is developing microwave electronic tubes for use in the radar and electronic devices used in navigation, weather, aviation and other specialized fields to make the seas and skies safer. This technology, which generates high-power microwaves, is employed in such fields as the production of membranes and other thin films by means of industrial heating and microwave plasma. In order to make these electron tubes easier to use, New JRC has proactively developed and brought to market single modules that combine the electric tubes and the power units that drive them, as well as modules with an integrated electron tube and microwave signal processing unit.

> *Microwave Devices*

The market for satellite broadcasting and communications is growing rapidly. New JRC has incorporated new basic developments into its long-standing high-frequency technologies to develop products with higher wave frequencies, seeking to create products that look toward the future.

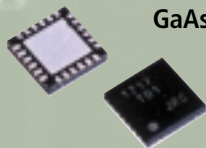
> *Semiconductors*

The versatility of general purpose linear ICs has led to their use in a large number of products. New JRC's power supply ICs—which have earned a top ranking for production performance in the industry—as well as its general purpose linear ICs, such as comparators, are found in many products that improve daily life.

Audio Processor with Subwoofer Output

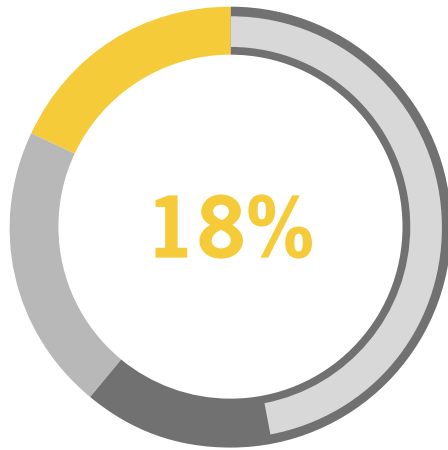


PHS Transceiver GaAs MMIC



Review of Operations

Medical Electronics Equipment (ALOKA)



JRC's subsidiary Aloka Co., Ltd. manufactures and sells equipment such as medical and general analysis systems. Founded in 1950, Aloka inherited electron tube and electronics technology from JRC, and has since grown to become one of the leading manufacturers and retailers of medical equipment. The word "aloka," which meant "light" in ancient Indo-Aryan, was registered as a trademark in 1936. JRC chose the word as the name for the new company from a desire to shine the light of health on all people through the production of superior

medical equipment. Aloka is a pioneer in the medical equipment field, and under the motto of "the preciousness of life" pursues technological innovations while carrying out a wide array of corporate activities.

Aloka seeks to respond to the diversified needs created by the increasing sophistication of medicine by continually bringing to the forefront ideas and products that improve the medical environment. The company is working from the standpoint of science and humanity to meet the challenge of ensuring appropriate medical treatment in the new social environment.

> *Electronic Medical Systems*

Aloka's diagnostic ultrasound systems, osteoporosis diagnosis systems, and treatment and surgical systems consistently support the leading edge of medical care. The high-quality, high-resolution imaging possible with Aloka's ultrasound diagnostic systems has been highly praised both in Japan and around the world, and it is today one of the major pillars of Aloka's business.

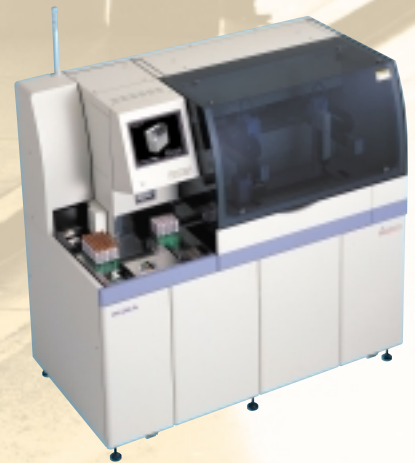
> *Radiation Protection and Analytical Instruments*

Aloka's radiation measuring instruments, radiation monitoring systems, and biology systems incorporate an array of cutting-edge technologies, helping pioneer new fields. It has developed radiation measuring instruments incorporating the latest technologies for use at all facilities that handle radioisotopes, such as nuclear power plants, universities, research centers and hospitals.

> *Clinical Laboratory Systems*

Aloka offers the clinical testing systems and dispensing systems required in modern medicine to help optimize clinical testing. Its products are developed with a focus on shorter testing times, automation and versatility, playing an important role in many areas of modern medicine.

LabFLEX2500



Prosound SSD-4000

